Financing Mechanisms

Internal Funds

The most direct way for your school or community to pay for energy efficiency improvements is to allocate funds from the internal capital or operating budget. Financing internally has two clear advantages over the other options: it retains internally all the savings from increased energy efficiency, and it is usually the simplest option administratively.

All or some of the resulting savings may be used to decrease overall operating expenses in future years or retained within a revolving fund and used to support additional efficiency investments. Many public and private organizations regularly finance some or all of their energy efficiency improvements from internal funds.

Since comprehensive energy efficiency improvements commonly have simple paybacks of 5 to 6 years, or about a 12% annual rate of return, internal funds cannot realistically be expected to serve as the sole source of financing for such improvements. However, internal funding can be used profitably to achieve more competitive rates of return when combined with one or more other options.

Debt Financing

Direct borrowing of capital from private lenders can be an attractive alternative to the allocation of internal funding for energy efficiency investments. For both public and private schools, this approach avoids tapping internal funding, and financing costs can be repaid by the savings that accrue from increased energy efficiency.

Municipal governments often issue bonds or other long-term debt instruments at substantially lower interest rates than private corporate entities. As in the case of internal funding, savings from efficiency improvements, less only the cost of financing, are retained internally.

Debt financing is administratively more complex than internal funding, and financing costs will vary according to the credit rating of the borrower. This approach may also be restricted by formal debt ceilings imposed by corporate or municipal policy, accounting standards, and/or federal or state legislation. As a key example of the latter, the Tax Reform Act of 1986 placed a cap on the total amount of revenue bonds that a state and its local public agencies may issue. This cap has resulted in substantial competition for the available bonds and can reduce the availability of tax-favored financing.

In general, debt financing should be considered for school bus purchases and large projects that involve multiple buildings or fleets and pose relatively little risk in achieving their energy savings targets.

Lease and Lease-Purchase Agreements

Leasing and lease-purchase agreements provide a means to reduce or avoid the high, up-front capital costs of new, energy-efficient equipment. These agreements may be offered by commercial leasing corporations, management and financing companies, banks, investment brokers, or equipment manufacturers.

As with direct borrowing, the lease should be designed so that the energy savings are sufficient to pay for the financing charges. While the time period of a lease can vary significantly, leases in which the lessee assumes ownership of the equipment generally range from 5 to 10 years.

Operating leases are usually for a short term - sometimes for less than one year. At the end of the lease period, the lessee may either renegotiate the lease, buy the equipment for its fair market value, or acquire other equipment. The lessor is considered the owner of the leased equipment and can claim tax benefits for its depreciation.

Financing leases are agreements in which the lessee essentially pays for the equipment in monthly installments. Although payments are generally higher than for an operating lease, the lessee may purchase the equipment at the end of the lease for a nominal amount (commonly $1.00). The lessee is considered the owner of the equipment and may claim certain tax benefits for its depreciation.

Municipal leases are available only to tax-exempt entities such as school districts or municipalities [Section 265(b)(3) of the Internal Revenue Code]. Under this type of lease, the lessor does not have to pay taxes on the interest portion of the lessee's payments, and can offer a lower interest rate than usual for financing leases.

Because of restrictions against multi-year liabilities, the municipality specifies in the contract that the lease will be renewed each year. This places a higher risk on the lessor, who must be prepared for the possibility that funding for the lease may not be appropriated. Therefore, the lessor may charge an interest rate as much as 2% above the tax-exempt bond rate, but still lower than rates for regular financing leases. Even so, municipal leases are generally faster and more flexible financing tools than tax-exempt bonds.

Guaranteed savings leases are the same as financing or operating leases, but with an additional guaranteed savings clause. Under this type of lease, the lessee is guaranteed that the annual payments for leasing the energy efficiency improvements will not exceed the energy savings generated by them. The school or community pays the contractor a fixed payment per month. However, if the actual energy savings are less than the fixed payment, the school or community pays only the amount saved and receives a credit for the difference.

Energy Performance Contracts

Energy performance contracts are generally financing or operating leases provided by an Energy Service Company (ESCo) or equipment manufacturer. What distinguished these contracts is that they provide a guarantee on energy savings from the installed retrofit measures, and they usually also offer a range of associated design, installation, and maintenance services. The contract period can range from 5 to 10 years, and the customer is required to have a certain minimum level of capital investment (generally $200,000 or more) before a contract will be considered.

Under an energy performance contract, the ESCo provides a service package that typically includes the design and engineering, financing, installation, and maintenance of retrofit measures to improve energy efficiency. The scope of the improvements can range from work that affects a single part of a building's energy-using infrastructure (such as lighting) to a complete package of improvements for multiple buildings and facilities.

Generally, the service provider will guarantee savings as a result of improvements in both energy and maintenance efficiencies. Flat-fee payments tend to be structured to maintain a positive cash flow to the customer with whom the agreement is made. With the increasing deregulation of conventional energy utilities, several larger utilities have formed unregulated subsidiaries that offer a full range of energy efficiency services under performance agreements.

An energy performance contract must define the method for establishing the baseline costs and cost savings and for the distribution of the savings to the parties. The contract also must specify how the savings will be determined and address contingencies such as utility rate changes and variations in the use and occupancy of a building. While several excellent guides exist for selecting and negotiating energy performance contracts, large or complicated contracts should be negotiated with the assistance of experienced legal counsel.

Some guidelines for a successful ESCo project include:

1. Look for more than the low bid. Select an ESCo with a good track record that can provide other necessary services such as project design, installation and maintenance. Get references.
2. Negotiate a contract that reasonably limits ESCo profit-making and establishes a win-win arrangement. Carefully weigh the pros and cons of shared savings versus fees for services and other contractual arrangements.
3. Require the ESCo to take a "comprehensive approach" to energy conservation—bundling measures with rapid paybacks and measures with longer paybacks—rather than a "cream-skimming approach" (the practice of doing only easy, quick payback measures).
4. Ensure the agreement does not allow the ESCo to sacrifice quality for energy savings.
5. Ask your ESCo to incorporate extended product warranties and personnel training into the bid specifications.
6. Organize an in-house project team to work with the ESCo to choose appropriate energy measures, prepare bid specs, prequalify prospective bidders, and perform other tasks when the contract is signed.
7. Work with the ESCo to test new technologies in order to determine their performance and applicability.
8. Design the project and coordinate construction in a way that minimizes disruption of the school's functions.
9. Document both energy and non-energy benefits of your project and publicize its success to the community.

Guidelines reprinted from "Recharging Campus Energy Conservation: ESCos and Demand Side Management," Facilities Manager, Winter 1994, Walter Simpson.

Utility Incentives

Some utilities still offer financial incentives for installation of energy-efficient systems and equipment, although the number and extent of such programs appears to be decreasing as utility deregulation proceeds. These incentives are available for a variety of energy-efficient products including lighting, HVAC systems, energy management controls, and others. The most common incentives are equipment rebates, design assistance, and low-interest loans.

In general, the primary purpose of utility incentives is to lower peak demand. Overall energy efficiency is an important but secondary consideration. Incentives are much more commonly offered by electric utilities than by natural gas utilities. The extent to which these incentives will be continued or expanded by the utility industry is uncertain.

Utility assistance that is typically available includes:

Equipment Rebates
Some utilities offer rebates on the initial purchase price of selected energy-efficient equipment. The amount of the rebate varies substantially depending on the type of equipment. For example, a rebate of $0.50 to $1.00 may be offered for replacement of an incandescent bulb with a more efficient fluorescent lamp, while installation of an adjustable-speed drive may qualify for a rebate of $10,000 or more.

Design Assistance
A smaller number of utilities provide direct grants or financial assistance to architects and engineers for incorporating energy efficiency improvements in their designs. This subsidy can be based on the square footage of a building, and/or the type of energy efficiency measures being considered. Generally, a partial payment is made when the design process is begun, with the balance paid once the design has been completed and installation has commenced.

Low-Interest Loans
Loans with below-market rates are provided by other utilities for the purchase of energy-efficient equipment and systems. Typically, these low-interest loans will have an upper limit in the $10,000 to $20,000 range, with monthly payments scheduled over a 2-to-5-year period.

Additional Financing Sources and Considerations

State and Federal Assistance
Matching grants, loans, or other forms of financial assistance may be available from the federal government or state governments. A variety of state-administered programs for building efficiency improvements and efficient school buses are available, some of which are funded through federal block grants and programs and State Energy Program (SEP) funds. Check with your state energy office (http://www.eren.doe.gov/buildings/state_energy/map_contacts.html) for programs available in your state.

Bulk Purchasing
Large organizations generally have purchasing or materials procurement departments that often buy standard materials in bulk or receive purchasing discounts because of the volume of their purchases. Such organizations can help reduce the costs of energy efficiency renovations if their bulk purchasing capabilities can be used to obtain discounts on the price of materials (e.g., lamps and ballasts).

Project Transaction Costs
Certain fixed costs are associated with analyzing and installing energy measures in

each building and included in a retrofit program. Each additional building could represent more negotiations and transactions with your community, building analysts, energy auditors, equipment installers, commissioning agents, and other contractors. Similarly, each additional building will add to the effort involved in data analysis and tracking energy performance after the retrofit.

For these reasons, it is often possible to achieve energy savings at lower cost by focusing only on those buildings that are the largest energy users. One disadvantage with larger buildings is that the energy systems can be more difficult to understand. Overall, focusing on the largest energy users is often the most efficient use of financial resources.

Direct Value-Added Benefits

The primary value of retrofits to buildings and facilities lies in the reduction of operating costs through improved energy efficiency and maintenance savings. Nevertheless, the retrofit may also directly help address a variety of related concerns, and these benefits (and avoided costs) should be considered in assessing the true value of an investment.

A few examples of these benefits include compliance with federal requirements for phasing out chlorofluorocarbon (CFC) refrigerants in air-conditioning equipment, improvement of indoor air quality in office buildings and schools, easier disposal of toxic or hazardous materials found in energy-using equipment, and assistance in meeting increasingly stringent state or federal mandates for water conservation.

Economic Development Benefits

In addition to direct savings on operating costs and the added-value benefits mentioned above, investments in energy efficiency support a community's economic development and employment opportunities. Labor typically constitutes about 60% of a total energy investment; 50% of equipment can be expected to be purchased from local equipment suppliers. As a result, about 85% of the investment is retained within the local economy.

Also, funds retained in urban areas will generally be re-spent in the local economy. The Department of Commerce estimates that each dollar retained in an urban area will be re-spent three times. This multiplier effect results in a threefold increase in the economic benefits of funds invested in energy efficiency, without even considering the savings from lower overall fuel costs.